**Unit 2 Map - Biochemistry**

AP Biology

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| **Topic** | **Learning Target** | **Checkpoint Score %** | **Test Score %** |
| 1. Atomic and Molecular Structure | A. I can describe the basic properties of atoms and the subatomic particles within them. |  |  |
| B. I can describe the interactions within molecules (ex: ionic and covalent bonds) that allow them to form molecules. |
| C. I can describe the interactions between molecules (ex: hydrogen bonds). |
| 2. Properties of Water | D. I can explain how the interactions between hydrogen and oxygen make water a polar molecule. |  |  |
| E. I can connect polarity of water to its ability to hydrogen bond. |
| F. I can connect the ability of water to hydrogen bond to its resulting properties – cohesion (and surface tension), adhesion, capillary action, high specific heat / heat capacity, universal solvent and low density as a solid. |
| 3. Macromolecules | G. I can explain why carbon is an important component of the four macromolecules—carbohydrates, lipids, proteins, and nucleic acids. |  |  |
| H. I can identify images and examples of monomers and polymers for the four macromolecules. |
| I. I can connect the structures of the macromolecules to their functions. |
| 4. Enzymes | J. I can characterize various chemical reactions based on the changes that occur within the reactants (i.e. anabolic vs. catabolic reaction) and the energy lost or gained by the reactants (i.e. exergonic vs. endergonic reaction) and provide examples of energy coupling between exergonic and endergonic reactions within living organisms. |  |  |
| K. I can discuss the nature and importance of interactions between the substrate and enzyme active site in an enzyme-catalyzed reaction. |
| L. I can discuss the differences in energy levels for an enzyme-catalyzed vs. non-catalyzed reaction pathway. |
| M. I can describe how the following factors affect enzyme efficiency: concentration of substrate, pH, and temperature. |
| N. I can predict how allosteric regulators, competitive inhibitors, and feedback regulation will affect enzyme activity. |